DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Proposal To Determine Five Texas Cave Invertebrates To Be Endangered Species

AGENCY: Fish and Wildlife Service Interior.

ACTION: Proposed rule.

SUMMARY: The Service proposes to determine endangered status under the authority of the Endangered Species Act of 1973, as amended, for five species of cave-dwelling, invertebrate animals in Texas. The five species are the Tooth Cave pseudoscorpion (*Microcreagris texana*), the Tooth Cave spider (*Leptoneta myopica*), the Bee Creek Cave harvestman (*Texella reddelli*), the Tooth Cave ground beetle (*Rhadine persephone*), and the Kretschmarr Cave mold beetle (*Texamaurops reddelli*). Each of these species is known from only six or fewer small, shallow, dry caves near Austin in Travis and Williamson Counties, Texas. Urban, industrial, and highway expansion are planned or ongoing in the area containing the cave habitat of these species. This development could result in filling or collapse of those shallow caves, disturbances of water drainage patterns that affect cave habitat, introduction of exotic competitive and predatory insects and other organisms, and pollution of the cave systems with pesticides, fertilizers, oils, and other harmful substances. A final determination that these five species are endangered would implement for them the protections provided by the Endangered Species Act. The Service seeks data and comments from the public on this proposal.

DATES: Comments from all interested parties must be received by June 20, 1988. Public hearing requests must be received by June 3, 1988.

ADDRESSES: Comments and materials concerning this proposal should be sent to the Regional Director, U.S. Fish and Wildlife Service, P.O. Box 1306, 500 Gold Avenue SW., Albuquerque, New Mexico 87103. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

FOR FURTHER INFORMATION CONTACT: Dr. Steven M. Chambers, Fish and Wildlife Biologist, U.S. Fish and Wildlife Service Regional Office, Albuquerque, New Mexico (See **ADDRESSES** above) (505/766-3972 of FTS 474-34972).

SUPPLEMENTARY INFORMATION:

Background

The Tooth Cave pseudoscorpion, *Microcreagris texana* (family Neobisiidae), was first described by Muchmore (1969) from a specimen collected in Tooth Cave, Travis County, by James Reddell in 1965. It reaches a lenght of about 4 millimeters (mm) (about 3/16 inch) and resembles a tiny, tailless scorpion. Pseudoscorpions lack a stinger and are harmless to humans. They use their pincers to prey on small insects and other arthropods. The Tooth Cave pseudoscorpion is eyeless and troglobitic (lives only in caves). It is known only from Tooth and Amber Caves, both in Travis County, Texas.

The Tooth Cave spider, *Leptoneta myopica* (family Leptonetidae), was first collected by James Reddell in 1963, and later described by Gertsch (1974). It has been found only in Tooth Cave, Travis County Texas. This spider is very small, up to 1.6 mm (about 1/16 inch) in total length, pale-colored, and has relatively long legs. It is a troglobite, although reduced eyes are present. The Tooth Cave spider is sedentary and spins webs from the ceiling and walls of Tooth Cave.

The Bee Creek Cave harvestman, *Texella reddelli* (family Phalangodidae), was first described by Goodnight and Goodnight (1967) from a specimen collected by James Reddell and David McKenzie from Bee Creek Cave (erroneously reported as "Pine Creek Cave"), Travis County. This light yellowish-brown harvestman has relatively long legs that extend from a small body (2 mm, or less than 1/8 inch, in length). It is an eyeless troglobite and is probably predatory. The Bee Creek Cave harvestman lives in Tooth, Bee Creek, McDonald, Weldon, and Bone Caves in Travis and Williamson Counties, Texas. The *Texella* reported by Reddell (1984) from Root Cave, Travis County, may also be this species.

The Tooth Cave ground beetle, *Rhadine persephone* (family Carabidae), was first described by Barr (1974) from specimens collected in the Tooth Cave by W.M. Andrews, R.W. Mitchell, and T.C. Barr in 1965. This species is a small (7-8 mm or about 5/16 inch in length), reddish-brown beetle. It is troglobitic and has only rudimentary eyes. It probably feeds on cave cricket eggs, which have been determined to be a major food of another troglobite species of *Rhadine* (Mitchell 1968). The Tooth Cave ground beetle is known only from Tooth and Kretschmarr Caves, Travis County, Texas.

The Kretschmarr Cave mold beetle, *Texamaurops reddelli*, was first described by Barr and Steeves (1963) from a specimen collected in Kretschmarr Cave by James R. Reddell and David McKenzie in 1963. This species is a very small (less than 3 mm, or about 1/8 inch, in length) dark-colored, short-winged, beetle with elongated legs. This member of the family Pselaphidae is an eyeless troglobite and is known only from Kretschmarr, Amber, Tooth, and Coffin Caves in Travis and Williamson Counties, Texas.

The caves inhabited by these five species are relatively small. The largest, McDonald Cave, consists of less than 60 meters (m) (about 200 feet) of passage, and most of the others are considerably smaller. These caves occur in isolated "islands" of the Edwards Limestone formation that were separated from one another when stream channels cut through the overlying limestone to lower rock layers. This fragmentation of habitat has resulted in the isolation of groups of caves that have developed their own, highly localized faunas.

In addition to the five species that are the subject of this proposal, these caves and others in the area support a number of other uncommon and scientifically significant species. Available habitat of this type is very limited, and many of these caves have been lost or are threatened with imminent loss.

The Service was first notified of the possible status of these five species by an August 20, 1984, letter from the Travis Audubon Society, Austin, Texas. The Conservation Committee of the Travis Audubon Society then petitioned the Service on February 8, 1985, to list these five and one other species (the Tooth Cave rove beetle, *Cylindropsis* sp.) as endangered. The Service evaluated this petition and on May 1, 1985, found that the petition did present substantial information indicating that the requested action may be warranted. A notice of that finding was published in the **Federal Register** on July 18, 1985 (50 FR 29238). On February 19, 1986, the Service found that the petitioned action was warranted but that such action was precluded by work on other pending proposals, in accordance with section 4(b)(3)(ii) of the Act. A notice of that finding was published on August 20, 1986 (51 FR 29672). On July 1, 1987 (52 FR 24487), the Service published a notice that the petitioned action was again warranted but precluded for the five species addressed in the present proposed rule. That same notice also announced the finding that listing was not warranted for the sixth species named in the petition, the Tooth Cave

blind rove beetle (*Cylindropsis* sp.). This conclusion was based on the determination that the single known specimen was in such poor condition that it could not provide adequate material for taxonomic evaluation and description; furthermore, the best available scientific information indicates that the taxon it represents is extinct.

Summary of Factors Affecting the Species

Section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR Part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to the Federal Lists. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to the Tooth Cave pseudoscorption (*Microcreagris texana*), Tooth Cave spider (*Leptoneta myopica*), Bee Creek Cave harvestman (*Texella reddelli*), Tooth Cave ground beetle (*Rhadine persephone*), and Kretschmarr Cave mold beetle (Texamaurops reddelli) are as follows:

A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

The primary threat to the five species comes from potential loss of habitat owing to anticipated development activities. Proximity of the caves inhabited by these species to the City of Austin makes them vulnerable to the continuing expansion of the Austin metropolitan area. Road, industrial, residential, and commercial developments that would adversely affect these species have already been proposed. Tooth, Amber, Kretschmarr, Kretschmarr Salamander, McDonald, and Root Caves are in an area for which a major residential, commercial, and industrial development has been proposed. This area includes the entire known ranges of the Tooth Cave pseudoscorption, the Tooth Cave spider, and the Tooth Cave ground beetle, all but one known locality of the Kretschmarr Cave mold beetle, and a large portion of the habitat of the Bee Creek Cave harvestman. Unless proper safeguards can be devised, this development could result in the filling in or collapsing of caves during road and building site preparation, and in alteration of drainage patterns that could affect the cave habitat. These species inhabit dry cave habitats that depend on some infiltration of groundwater. Disruption of this input would be harmful, as would excess input of water that would flood the caves. Flooding of habitat could also result from proposed no-discharge sewage effluent irrigation. Development of this area could also increase the flow of sediment, pesticides, fertilizers, and general urban runoff into the caves. Land alterations in this area have already been noted (Reddell 1984). Landmarks have been altered so that it is difficult to relocate some caves, and large boulders have been placed in the entrance of Kretschmarr Cave on two occasions (Reddell 1984). This cave is an important habitat for the beetles included in this proposal. Development in this area is also likely to increase human visitation and vandalism in the caves, which are so small that even occasional episodes could adversely alter the cave habitat.

Tooth Cave is near one alternative route for a proposed water pipeline from Lake Travis. Even if it is bypassed by the direct path of the pipeline, operation of heavy construction equipment or blasting could adversely affect Tooth Cave and other caves in the area inhabited by these species.

Weldon Cave, which supports a population of the Bee Creek Cave harvestman, is in or very near the path of a proposed road extension. Residential development is also occurring in this area, and is likely to be stimulated by the improved access provided by this road.

It is likely that most, if not all, or the five cave species occupied other caves that have already been lost to earlier development. This may have been the fate of Coffin Cave, which is historic habitat of the Tooth Cave mold beetle. Recent attempts to relocate this cave have not been successful.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

No threat from overutilization of these species is known to exist at this time. Collection for scientific or educational purposes could become a threat if localities become generally known.

C. Disease or Predation

As the human population of the area around these caves increases, the problems of predation by and competition with exotic (non-native) species also increases. Human habitation introduces a complement of exotic invertebrate species into many areas, particularly in semiarid areas such as the plateau northwest of Austin. These predatory species are transported into the area in various accompaniments of human occupation, including landscaping plants. Buildings, lawns, and shrubbery provide habitat from which these highly adaptable species can disperse. The relative accessibility of the shallow caves leaves them especially vulnerable to invasion by introduced invertebrate predators or competitors such as sowbugs and cockroaches.

D. The Inadequacy of Existing Regulatory Mechanisms

There are currently no laws that protect any of these species or that directly address protection of their habitat. Cave protection laws of the City of Austin do not apply because these areas are all outside the city limits.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

These species are extremely vulnerable to losses because of their severely limited range and habitat and because of the naturally limited ability to colonize new habitats. These troglobitic species have little or no ability to move appreciable distances on the surface. The division of the limestone habitat into "islands" limits the mobility of the species through channels within the limestone. Moisture regimes, food supply, and other factors may also limit subsurface migrations and may account for the different distribution patterns seen among these five species.

The specific climate factors within the caves, such as humidity, are affected by input through the cave entrance, the overlying soils, and the rocks in which the caves are formed. As discussed under factor A above, surface alterations can affect these conditions, as well as facilitate the flow of pollutants into the habitat.

The very small size of these habitats, in addition to the fragile nature of cave ecosystems in general, make these species vulnerable to even isolated acts of vandalism. As the human population of the area increases, the likelihood of such acts also increases.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by these species in determining to propose this rule. Based on this evaluation, the preferred action is to list the Tooth Cave pseudoscorpion, the Tooth Cave spider, the Bee Creek Cave harvestman, the Tooth Cave ground bettle, and the Kretschmarr Cave mold beetle as endangered species. These species require the maximum possible protection provided by the Act because their extremely small, vulnerable, and

limited habitats are within an area that can be expected to experience continuing pressures from economic and population growth. Critical habitat has not been proposed for reasons given in the next section.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that, to the maximum extent prudent and determinable, the Secretary designate any habitat of a species which is considered to be critical habitat at the time the species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for these species at this time. Their cave habitats are at the edge of an expanding urban area with a growing population. Increased human population density increases the likelihood of acts of vandalism that could irreversibly damage the caves. All involved parties and land owners will be notified of the location and importance of protecting these species' habitats. Protection of these habitats will be addressed through the recovery process and through the section 7 jeopardy standard. Therefore, it would not be prudent to determine critical habitat for these species at this time.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against taking and harm are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR Part 402. Section 7(a)(4) requires Federal agencies to confer informally with the Service on any action that is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service. No Federal involvement has been identified at this time. As development progresses the Federal Housing Authority, the Federal Highway Administration, and the Environmental Protection Agency may become involved in funding or permitting projects. Any involvement by these Federal agencies in development in the area of these caves could be a subject of consultation with the Service.

The Act and implementing regulation found at 50 CFR 17.21 set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to take, import or export, ship in interstate commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any endangered fish or wildlife species. It also is illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions would apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered wildlife species under certain circumstances. Regulations governing permits are at 50 CFR 17.22. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and/or for incidental take in connection with otherwise lawful activities.

Public Comments Solicited

The Service intends that any final action resulting from this proposal will be as accurate and as effective as possible. Therefore, any comments or suggestions from the public, other concerned government agencies, the scientific community, industry, or any other interested party concerning any aspect of this proposal are hereby solicited. Comments particularly are sought concerning:

(1) Biological, commercial trade, or other relevant data concerning any threat (or lack thereof) to these species;

(2) The location of any additional populations of these species and the reasons why any habitat should or should not be determined to be critical habitat as provided by section 4 of the Act;

(3) Additional information concerning the range and distribution of these species; and

(4) Current or planned activities in the subject area and their possible impacts on these species.

Final promulgation of the regulations on these species will take into consideration the comments and any additional information received by the Service, and such communications may lead to adoption of final regulations that differ from this proposal.

The Endangered Species Act provides for a public hearing on this proposal, if requested. Requests must be filed within 45 days of the date of publication of the proposal. Such requests must be made in writing and addressed to the Regional Director (see **ADDRESSES** section).

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

References Cited

Barr, T.C., Jr. 1974. Revision of *Rhadine* LeConte (Coleoptera, Carabidae). I. The *subterranea* group. American Museum Novitates No. 2539. 30 pp.

Barr, T.C., Jr. and H.R. Steeves, Jr. 1963. *Texamaurops*, a new genus of pselaphids from caves, in central Texas (Coleoptera: Pselaphidae). The Coleopterists' Bulletin 17:117–120.

Gertsch, W.J. 1974. The spider family Leptonetidae in North America. The Journal of Arachnology 1:145–203.

Goodnight, C.J. and M.L. Goodnight. 1967. Opilionids from Texas caves (Opiliones, Phalangodidae). American Museum Novitates No. 2301. 8 pp.

Mitchell, R.W. 1968. Food and feeding habits of the troglobitic carabid beetle *Rhadine subterranea*. International Journal of Speleology 3:249–270.

Muchmore, W.B. 1969. New species and records of cavernicolous pseudoscorpions of the genus *Microcreagris* (Arachnida, Chelonethida, Neobisiidae, Ideobisiinae). American Museum Novitates No. 2932. 21 pp.

Reddell, J.R. 1984. Report on the Caves and Cave Fauna of the Parke, Travis County, Texas. Unpublished report to the Texas System of Natural Laboratories. 25 pp.

Author

The primary author of this proposed rule is Dr. Steven M. Chambers, Fish and Wildlife Biologist, Office of Endangered Species, U.S. Fish and Wildlife Service, P.O. Box 1306, Albuquerque, New Mexico 87103 (505/766-3972 or FTS 474-3972).

List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

Proposed Regulations Promulgation

Accordingly, it is hereby proposed to amend Part 17, Subchapter B of Chapter I, Title 50 of the Code of Federal Regulations, as set forth below:

PART 17—[AMENDED]

1. The authority citation for Part 17 continues to read as follows:

Authority: Pub. L. 93-205, 87 Stat. 884; Pub. L 94-359, 90 Stat. 911; Pub. L. 95-632, 92 Stat. 3751; Pub. L. 96-159, 93 Stat. 1225; Pub. L. 97-304, 96 Stat. 1411 (16 U.S.C. 1531 *et seq.*); Pub. L. 99-625, 100 Stat. 3500 (1986), unless otherwise noted.

2. It is proposed to amend § 17.11(h) by establishing a new taxonomic group heading, "Arachnids", to follow the entries under "Insects" on the List of Endangered and Threatened Wildlife.

3. It is further proposed to amend § 17.11(h) by adding the following, in alphabetical order under the two indicated taxonomic group headings, to the List of Endangered and Threatened Wildlife.

§ 17.11 Endangered and threatened wildlife.

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Species							
Common name	Scientific name	Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
INSECTS:							
Beetle, Kretschmarr Cave moss	*Texamaurops reddelli*	U.S.A. (TX)	NA	E		NA	NA
Beetle, Tooth Cave ground	*Rhadine persephone*	U.S.A. (TX)	NA	E		NA	NA
ARACHNIDS:							
Harvestman, Bee Creek Cave	*Texella reddelli*	U.S.A. (TX)	NA	E		NA	NA
Pseudoscorpion, Tooth Cave	*Microcreagris texana*	U.S.A. (TX)	NA	E		NA	NA
Spider, Tooth Cave	*Leptoneta myopica*	U.S.A. (TX)	NA	E		NA	NA

Dated: March 25, 1988.

Susan Recce,

Assistant Secretary for Fish and Wildlife and Parks.

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